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ESAT Region 8 Chain of Custody Form
U.S. Environmental Protection Agency
Region 8 Superfund Program

1237685 - R8 SDMS

Site Name: Rico-Argentina-Surface Waters-Jun 2011 TDF: DG-264

Site Manager: Steve Way Work Order: C110616

Relinquished By:

Print Name Scott DellaMia Date 8/3/11 Signature SDellaMia

Received By:

Print Name Don Goodrich Date 8/3/11 Signature DonGoodrich

Relinquished By:

Print Name _____ Date _____ Signature _____

Received By:

Print Name Steve Way Date _____ Signature SteveWay

Relinquished By:

Print Name _____ Date _____ Signature _____

Received By:

Print Name Rodney Vargas Date MAY 31 2012 Signature RodneyVargas



TechLaw, Inc.
Environmental Services Assistance Team
16194 W. 45th Drive, Golden, CO 80403
(303) 312-7708

Task Order: 40 - Analytical Spt & Data Validation (Non-Libby)

DCN#: EP8 - 6 - 6332

Contract: EP-W-06-33

TDF#: D264

Line Item: All

TDF Status: In Progress

Date: 8/3/2011

To: Don Goodrich, USEPA, Region 8 ESAT Task Order Project Officer

From: Scout DellaMia, ESAT Environmental Scientist

Through: Mark McDaniel, Region 8 ESAT Team Manager

Subject: Rico-Argentine - Surface Waters - JUN 2011 (C110616)

Comments:

06/28/2011 Received 16 Water Samples for the following analyses:

Total Recoverable Metals by ICP-OE

Total Recoverable Metals by ICP-MS

Dissolved Metals / Hardness by ICP-OE

Dissolved Metals ICP-MS

WC - Anions by Ion Chromatography 2010

Thank You

A handwritten signature in black ink, appearing to read "Scout DellaMia".

TDF #: DG-264

Case Narrative**C110616**

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TDF-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s).

1. Initial and Continuing calibration blanks (ICBs and CCBs).

Exceptions: In ICP-MS sequence 1108012, silver was detected in the ICB just above the PQL. As a result, the reporting limit for lead was raised from 0.50 ug/L to 0.60 ug/L. No qualifiers were assigned.

2. Preparation (PB) / Method blanks (MB)

Exceptions: None.

3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.

Exceptions: None.

4. Initial and Continuing calibration verification analyses (ICVs and CCVs).

Exceptions: In ICP-MS sequence 1108008, beryllium recovered low in CCV5 and CCV7. In ICP-MS sequence 1108012, lead recovered high by 1% in CCV2. No qualifiers were assigned.

5. Laboratory Control Sample (LCS) or second source analysis or SRM.

Exceptions: None.

6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes.

PBS performed with analyses/methods requiring preparation or digestion prior to analysis.

Exceptions: None.

7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL or CRL.

Exceptions: None.

8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.

Exceptions: None.

9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.

Exceptions: None.

10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory.

Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x it's PQL).

Exceptions: None.

11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.

Exceptions: None.

12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.

Exceptions: None.



U.S. Environmental Protection Agency
Region 8
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 08/03/11

Subject: Analytical Results--- **Rico-Argentine_Surface Waters_JUN 2011_D264 / DG-264**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Steve Way
Superfund
1595 Wynkoop Street

Received Sample Set(s), [Work Order : Date Received]:

[C110616 : 06/28/2011]

Attached are the analytical results for the samples received from the Rico-Argentine_Surface Waters_JUN 2011_D264 sampling event, according to TDF DG-264. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction Form (TDF).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by > 4x.
NFGI	USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.

Method(s) Summary:

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP-OE (ICP).
- Method 200.8 / 6020 using a Perkin-Elmer Elan 6000 ICP-MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin-Elmer FIMS CVAA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg (milligram) equivalent CaCO₃ per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids.

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	Argentine Shaft Tunnel	Date / Time Sampled:	06/23/11 10:30	Workorder:	C110616
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water	Lab Number:	C110616-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	30.2	J	ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	85200		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	5100		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	998	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	1180		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	< 2.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	48.7		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	5.64		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	0.140	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	< 0.500	U	ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	1.28		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	0.806	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	1.57	J	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	10.8		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	234		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: Argentine Tunnel Main EPA Tag No.: No Tag Prefix-A		Date / Time Sampled: 06/23/11 13:50 Matrix: Surface Water			Workorder: C110616 Lab Number: C110616-04 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	656000		ug/L	1000	50	08/01/2011	SW	1108003
200.7	Calcium	435000		ug/L	5000	50	08/01/2011	SW	1108003
200.7	Iron	1950000		ug/L	5000	50	08/01/2011	SW	1108003
200.7	Magnesium	1250000		ug/L	5000	50	08/01/2011	SW	1108003
200.7	Potassium	< 50000	U	ug/L	12500	50	08/01/2011	SW	1108003
200.7	Sodium	< 25000	U	ug/L	12500	50	08/01/2011	SW	1108003
200.8	Antimony	< 100	U	ug/L	50.0	100	08/01/2011	SV	1108004
200.8	Arsenic	83.8	J	ug/L	50.0	100	08/01/2011	SV	1108004
200.8	Barium	< 1000	U	ug/L	500	100	08/01/2011	SV	1108004
200.8	Beryllium	172		ug/L	10.0	100	08/01/2011	SV	1108004
200.8	Cadmium	12000		ug/L	10.0	100	08/01/2011	SV	1108004
200.8	Chromium	336		ug/L	50.0	100	08/01/2011	SV	1108004
200.8	Cobalt	531		ug/L	10.0	100	08/01/2011	SV	1108004
200.8	Copper	349000		ug/L	50.0	100	08/01/2011	SV	1108004
200.8	Lead	239		ug/L	10.0	100	08/01/2011	SV	1108004
200.8	Manganese	294000		ug/L	20.0	100	08/01/2011	SV	1108004
200.8	Molybdenum	< 20.0	U	ug/L	10.0	100	08/01/2011	SV	1108004
200.8	Nickel	882		ug/L	50.0	100	08/01/2011	SV	1108004
200.8	Selenium	248		ug/L	50.0	100	08/01/2011	SV	1108004
200.8	Silver	< 50.0	U	ug/L	10.0	100	08/01/2011	SV	1108004
200.8	Thallium	< 100	U	ug/L	50.0	100	08/01/2011	SV	1108004
200.8	Vanadium	< 200	U	ug/L	100	100	08/01/2011	SV	1108004
200.8	Zinc	2460000		ug/L	200	100	08/01/2011	SV	1108004
2340B	Hardness	6230		mg/L	75	50	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-3 EPA Tag No.: No Tag Prefix-A		Date / Time Sampled: 06/23/11 14:00 Matrix: Surface Water			Workorder: C110616 Lab Number: C110616-07 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	351		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	250000		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	445		ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	24200		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	1680		ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	9100		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Barium	< 100	U	ug/L	50.0	10	08/01/2011	SV	1108004
200.8	Beryllium	< 2.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Cadmium	52.0		ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Chromium	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Cobalt	4.72		ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Copper	55.2		ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Lead	< 2.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Manganese	4270		ug/L	2.00	10	08/01/2011	SV	1108004
200.8	Molybdenum	6.00		ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Nickel	8.73	J	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Selenium	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Silver	2.97	J	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Thallium	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	08/01/2011	SV	1108004
200.8	Zinc	10200		ug/L	20.0	10	08/01/2011	SV	1108004
2340B	Hardness	723		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	DR-7	Date / Time Sampled:	06/23/11 14:20	Workorder:	C110616
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water	Lab Number:	C110616-10 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	85.4		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	24400		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	3390		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	568	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	1540		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	< 2.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	36.3		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.819		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.75		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	0.519	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	1.42		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	77.4		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.579		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	149		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	75		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SC-068
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 06/23/11 16:00
Matrix: Surface WaterWorkorder: C110616
Lab Number: C110616-13 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	53.4		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	18300		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1670		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	443	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	917		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	1.76	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	74.6		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.81		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	0.120	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	1.00		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	0.947		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.212		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	5.42		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	4.79	J	ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	52		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	SC-1131	Date / Time Sampled:	06/23/11 16:41	Workorder:	C110616
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water	Lab Number:	C110616-16 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	68.3		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	19900		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1850		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	436	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	874		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	1.51	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	71.7		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.467		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.85		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	2.78		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	0.554		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	14.1		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.197	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	4.53		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	83.2		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	57		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SC-198 EPA Tag No.: No Tag Prefix-A		Date / Time Sampled: 06/23/11 16:00 Matrix: Surface Water			Workorder: C110616 Lab Number: C110616-19 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	51.9		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	18400		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1700		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	442	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	914		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	1.67	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	76.7		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.95		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	< 0.500	U	ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.178	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	5.16		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	8.28		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	53		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SC-351
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 06/23/11 16:02
Matrix: Surface WaterWorkorder: C110616
Lab Number: C110616-22 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	54.0		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	18400		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1710		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	422	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	892		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	1.70	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	76.0		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.187	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.94		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	0.591	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	1.41		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	2.89		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.193	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	5.09		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	39.3		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	53		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	SC-404	Date / Time Sampled:	06/24/11 11:40	Workorder:	C110616
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water	Lab Number:	C110616-25 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	53.4		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	19900		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1870		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	423	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	8370		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	0.641	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	79.9		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.242		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.90		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	0.589	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	0.280		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	2.74		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.179	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	52.6		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	57		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	SC-4040	Date / Time Sampled:	06/24/11 11:50	Workorder:	C110616				
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water	Lab Number:	C110616-28 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	56.4		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	20000		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1880		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	418	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	9710		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	0.635	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	78.4		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.212		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.93		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	0.274		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	2.98		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.192	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	53.0		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	58		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	SC-493	Date / Time Sampled:	06/23/11 16:10	Workorder:	C110616
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water	Lab Number:	C110616-31 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	65.7		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	18300		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1730		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	432	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	912		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	1.71	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	77.0		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.293		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.65		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	2.12		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	1.61		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	9.04		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.185	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	5.11		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	55.7		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	53		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SC-699	Date / Time Sampled: 06/23/11 16:17	Workorder: C110616
EPA Tag No.: No Tag Prefix-A	Matrix: Surface Water	Lab Number: C110616-34 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	72.3		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	18300		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	111	J	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1740		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	440	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	914		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	1.63	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	76.5		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.333		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.91		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	2.78		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	0.642		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	11.4		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.186	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	5.10		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	61.2		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	53		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	SC-895	Date / Time Sampled:	06/23/11 16:56		Workorder:	C110616			
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water		Lab Number:	C110616-37 A			
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	65.9		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	19300		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1750		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	433	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	858		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	1.54	J	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	70.5		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.424		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	1.86		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	2.57		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	0.387		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	9.78		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.184	J	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	4.66		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	78.9		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	55		mg/L	2	1	08/01/2011	SW	1108003

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SC-B EPA Tag No.: No Tag Prefix-A		Date / Time Sampled: 06/23/11 16:15 Matrix: Surface Water			Workorder: C110616 Lab Number: C110616-40 A				
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	< 1000	U	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	< 500	U	ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	< 2.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	< 10.0	U	ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	< 0.500	U	ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	< 5.00	U	ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	< 2		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SCEF EPA Tag No.: No Tag Prefix-A		Date / Time Sampled: Matrix: Surface Water		Workorder: Lab Number: C110616-43 A					
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	50.6		ug/L	20.0	1	08/01/2011	SW	1108003
200.7	Calcium	26000		ug/L	100	1	08/01/2011	SW	1108003
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1108003
200.7	Magnesium	1380		ug/L	100	1	08/01/2011	SW	1108003
200.7	Potassium	495	J	ug/L	250	1	08/01/2011	SW	1108003
200.7	Sodium	583		ug/L	250	1	08/01/2011	SW	1108003
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Arsenic	< 2.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Barium	50.2		ug/L	5.00	1	08/01/2011	SV	1108004
200.8	Beryllium	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Cadmium	0.958		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Chromium	2.15		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Copper	2.51		ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Lead	1.27		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Manganese	3.57		ug/L	0.200	1	08/01/2011	SV	1108004
200.8	Molybdenum	0.404		ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Selenium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Silver	< 0.500	U	ug/L	0.100	1	08/01/2011	SV	1108004
200.8	Thallium	< 1.00	U	ug/L	0.500	1	08/01/2011	SV	1108004
200.8	Vanadium	< 2.00	U	ug/L	1.00	1	08/01/2011	SV	1108004
200.8	Zinc	89.2		ug/L	2.00	1	08/01/2011	SV	1108004
2340B	Hardness	71		mg/L	2	1	08/01/2011	SW	1108003

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #:

DG-264**Metals (Dissolved) by EPA 200/7000 Series Methods**

Station ID:	SVS-12	Date / Time Sampled:	06/23/11 10:30	Workorder:	C110616				
EPA Tag No.:	No Tag Prefix-A	Matrix:	Surface Water	Lab Number:	C110616-46 A				
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 500	U	ug/L	200	10	08/01/2011	SW	1108003
200.7	Calcium	355000		ug/L	1000	10	08/01/2011	SW	1108003
200.7	Iron	< 2500	U	ug/L	1000	10	08/01/2011	SW	1108003
200.7	Magnesium	65300		ug/L	1000	10	08/01/2011	SW	1108003
200.7	Potassium	3750	J	ug/L	2500	10	08/01/2011	SW	1108003
200.7	Sodium	3020	J	ug/L	2500	10	08/01/2011	SW	1108003
200.8	Antimony	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Barium	< 100	U	ug/L	50.0	10	08/01/2011	SV	1108004
200.8	Beryllium	< 2.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Chromium	7.52	J	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Cobalt	< 2.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Copper	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Lead	< 2.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Manganese	5140		ug/L	2.00	10	08/01/2011	SV	1108004
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Nickel	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Selenium	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Silver	< 5.00	U	ug/L	1.00	10	08/01/2011	SV	1108004
200.8	Thallium	< 10.0	U	ug/L	5.00	10	08/01/2011	SV	1108004
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	08/01/2011	SV	1108004
200.8	Zinc	3550		ug/L	20.0	10	08/01/2011	SV	1108004
2340B	Hardness	1160		mg/L	15	10	08/01/2011	SW	1108003

"J" Qualifier indicates an estimated value

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	Argentine Shaft Tunnel	Date / Time Sampled:	06/23/11 10:30	Workorder:	C110616
EPA Tag No.:	No Tag Prefix-C	Matrix:	Surface Water	Lab Number:	C110616-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	40.6	J	ug/L	20.0	1	08/01/2011	SW	1107126
200.7	Calcium	84200		ug/L	100	1	08/01/2011	SW	1107126
200.7	Iron	< 250	U	ug/L	100	1	08/01/2011	SW	1107126
200.7	Magnesium	5090		ug/L	100	1	08/01/2011	SW	1107126
200.7	Potassium	986	J	ug/L	250	1	08/01/2011	SW	1107126
200.7	Sodium	1220		ug/L	250	1	08/01/2011	SW	1107126
200.8	Antimony	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Barium	51.1		ug/L	25.0	5	08/02/2011	SV	1107126
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Chromium	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Copper	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Lead	1.60		ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Manganese	< 2.50	U	ug/L	1.00	5	08/02/2011	SV	1107126
200.8	Molybdenum	1.35		ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Nickel	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Selenium	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Silver	< 3.00	U	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Thallium	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	08/02/2011	SV	1107126
200.8	Zinc	14.1	J	ug/L	10.0	5	08/02/2011	SV	1107126

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	Argentine Tunnel Main	Date / Time Sampled:	06/23/11 13:50	Workorder:	C110616
EPA Tag No.:	No Tag Prefix-C	Matrix:	Surface Water	Lab Number:	C110616-06 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	677000		ug/L	1000	50	08/01/2011	SW	1107126
200.7	Calcium	445000		ug/L	5000	50	08/01/2011	SW	1107126
200.7	Iron	2010000		ug/L	5000	50	08/01/2011	SW	1107126
200.7	Magnesium	1290000		ug/L	5000	50	08/01/2011	SW	1107126
200.7	Potassium	< 50000	U	ug/L	12500	50	08/01/2011	SW	1107126
200.7	Sodium	< 25000	U	ug/L	12500	50	08/01/2011	SW	1107126
200.8	Antimony	< 100	U	ug/L	50.0	100	08/02/2011	SV	1107126
200.8	Arsenic	98.4	J	ug/L	50.0	100	08/02/2011	SV	1107126
200.8	Barium	< 1000	U	ug/L	500	100	08/02/2011	SV	1107126
200.8	Beryllium	197		ug/L	10.0	100	08/02/2011	SV	1107126
200.8	Cadmium	11900		ug/L	10.0	100	08/02/2011	SV	1107126
200.8	Chromium	331		ug/L	50.0	100	08/02/2011	SV	1107126
200.8	Cobalt	520		ug/L	10.0	100	08/02/2011	SV	1107126
200.8	Copper	350000		ug/L	50.0	100	08/02/2011	SV	1107126
200.8	Lead	473		ug/L	10.0	100	08/02/2011	SV	1107126
200.8	Manganese	270000		ug/L	20.0	100	08/02/2011	SV	1107126
200.8	Molybdenum	< 20.0	U	ug/L	10.0	100	08/02/2011	SV	1107126
200.8	Nickel	848		ug/L	50.0	100	08/02/2011	SV	1107126
200.8	Selenium	295		ug/L	50.0	100	08/02/2011	SV	1107126
200.8	Silver	33.8	J	ug/L	10.0	100	08/02/2011	SV	1107126
200.8	Thallium	81.2	J	ug/L	50.0	100	08/02/2011	SV	1107126
200.8	Vanadium	< 200	U	ug/L	100	100	08/02/2011	SV	1107126
200.8	Zinc	2390000		ug/L	200	100	08/02/2011	SV	1107126

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	DR-3	Date / Time Sampled:	06/23/11 14:00		Workorder:	C110616			
EPA Tag No.:	No Tag Prefix-C	Matrix:	Surface Water		Lab Number:	C110616-09 A			
Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1040		ug/L	20.0	1	08/01/2011	SW	1107126
200.7	Calcium	242000		ug/L	100	1	08/01/2011	SW	1107126
200.7	Iron	4960		ug/L	100	1	08/01/2011	SW	1107126
200.7	Magnesium	24500		ug/L	100	1	08/01/2011	SW	1107126
200.7	Potassium	1760		ug/L	250	1	08/01/2011	SW	1107126
200.7	Sodium	9510		ug/L	250	1	08/01/2011	SW	1107126
200.8	Antimony	< 10.0	U	ug/L	5.00	10	08/02/2011	SV	1107126
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	08/02/2011	SV	1107126
200.8	Barium	< 100	U	ug/L	50.0	10	08/02/2011	SV	1107126
200.8	Beryllium	1.23	J	ug/L	1.00	10	08/02/2011	SV	1107126
200.8	Cadmium	54.8		ug/L	1.00	10	08/02/2011	SV	1107126
200.8	Chromium	< 10.0	U	ug/L	5.00	10	08/02/2011	SV	1107126
200.8	Cobalt	4.81		ug/L	1.00	10	08/02/2011	SV	1107126
200.8	Copper	153		ug/L	5.00	10	08/02/2011	SV	1107126
200.8	Lead	3.28		ug/L	1.00	10	08/02/2011	SV	1107126
200.8	Manganese	4160		ug/L	2.00	10	08/02/2011	SV	1107126
200.8	Molybdenum	7.42		ug/L	1.00	10	08/02/2011	SV	1107126
200.8	Nickel	9.29	J	ug/L	5.00	10	08/02/2011	SV	1107126
200.8	Selenium	< 10.0	U	ug/L	5.00	10	08/02/2011	SV	1107126
200.8	Silver	< 6.00	U	ug/L	1.00	10	08/02/2011	SV	1107126
200.8	Thallium	< 10.0	U	ug/L	5.00	10	08/02/2011	SV	1107126
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	08/02/2011	SV	1107126
200.8	Zinc	10200		ug/L	20.0	10	08/02/2011	SV	1107126

Project Name: Rico-Argentine_Surface Waters_JUN 2011_D264

Certificate of Analysis

TDF #: DG-264

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	DR-7	Date / Time Sampled:	06/23/11 14:20	Workorder:	C110616				
EPA Tag No.:	No Tag Prefix-C	Matrix:	Surface Water	Lab Number:	C110616-12 A				
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	372		ug/L	20.0	1	08/01/2011	SW	1107126
200.7	Calcium	24300		ug/L	100	1	08/01/2011	SW	1107126
200.7	Iron	300		ug/L	100	1	08/01/2011	SW	1107126
200.7	Magnesium	3460		ug/L	100	1	08/01/2011	SW	1107126
200.7	Potassium	642	J	ug/L	250	1	08/01/2011	SW	1107126
200.7	Sodium	1540		ug/L	250	1	08/01/2011	SW	1107126
200.8	Antimony	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Barium	40.3	J	ug/L	25.0	5	08/02/2011	SV	1107126
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Cadmium	1.11		ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Chromium	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Copper	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Lead	0.933	J	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Manganese	77.6		ug/L	1.00	5	08/02/2011	SV	1107126
200.8	Molybdenum	0.571	J	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Nickel	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Selenium	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Silver	< 3.00	U	ug/L	0.500	5	08/02/2011	SV	1107126
200.8	Thallium	< 5.00	U	ug/L	2.50	5	08/02/2011	SV	1107126
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	08/02/2011	SV	1107126
200.8	Zinc	149		ug/L	10.0	5	08/02/2011	SV	1107126